

**Amendments to the Claims:**

This listing of claims will replace all prior versions, and listings, of claims in the application:

**Listing of Claims:**

1. (Currently Amended) A multilayer coating for a carbon-containing component, the coating comprising at least two layers, wherein each of said layers comprises a material selected from the group consisting of:  
5           non-stoichiometric compounds of silicon and carbon;  
          ~~non-stoichiometric silicon and oxygen;~~  
          ~~non-stoichiometric silicon and nitrogen~~  
          compounds of silicon, oxygen, and carbon;  
          compounds of silicon, oxygen and nitrogen;  
          compounds of silicon, nitrogen, and carbon;  
10          compounds of silicon, oxygen, nitrogen, and carbon; and  
          ~~silicon; the coating being halogen-free.~~
2. (Withdrawn) The coating of claim 1, wherein the material is non-stoichiometric silicon and carbon.
3. (Withdrawn) The coating of claim 1, wherein the material is non-stoichiometric silicon and oxygen.
4. (Withdrawn) The coating of claim 1, wherein the material is non-stoichiometric silicon and nitrogen.

5. (Currently amended) The coating of claim 1, wherein the ~~material is a compound of silicon, oxygen, and carbon~~ carbon-containing component comprises a carbon-carbon composite material.

6. (Withdrawn) The coating of claim 1, wherein the material is a compound of silicon, oxygen, and nitrogen.

7. (Withdrawn) The coating of claim 1, wherein the material is a compound of silicon, nitrogen, and carbon.

8. (Withdrawn) The coating of claim 1, wherein the material is silicon.

9. (Withdrawn) The coating of claim 1, wherein the material is a compound of silicon, oxygen nitrogen, and carbon.

10. (Currently amended) The coating of ~~claim 1~~ claim 5, wherein ~~the coating includes multiple layers, at least one of the layers being made of the material selected from the group~~ carbon-containing component comprises a plate-fin heat exchanger.

11. (Original) The coating of claim 1 wherein the coating has a graded composition through its thickness.

12. (Canceled)

13. (Currently amended) A multilayer coating for a carbon-containing component, the coating comprising at least two layers, wherein each of said layers comprises a material selected from the group consisting of:  
silicon (Si);

- 5                   ~~silicon oxide (SiO<sub>x</sub>);~~  
                    silicon carbide (SiC<sub>y</sub>); silicon oxycarbide (SiO<sub>x</sub>C<sub>y</sub>);  
                    ~~silicon nitride (SiN<sub>z</sub>);~~  
                    silicon oxynitride (SiO<sub>x</sub>N<sub>z</sub>);  
                    silicon carbonitride (SiC<sub>y</sub>N<sub>z</sub>); and  
10                   silicon oxycarbonitride (SiO<sub>x</sub>C<sub>y</sub>N<sub>z</sub>);  
                    wherein  $x < 2$ ,  $y < 1$  and  $z < 4/3$ , and at least one of  $x$ ,  $y$ , and  $z$  is  
greater than zero; ~~and wherein the coating is halogen-free.~~

Claims 14-21 (Canceled)

22.   (New) A coating for a carbon-containing component, wherein said  
coating comprises at least one material selected from the group consisting of:  
          non-stoichiometric compounds of silicon and carbon;  
          non-stoichiometric compounds of silicon and oxygen;  
5           non-stoichiometric compounds of silicon and nitrogen;  
          compounds of silicon, oxygen, and carbon;  
          compounds of silicon, oxygen, and nitrogen;  
          compounds of silicon, nitrogen, and carbon;  
          compounds of silicon, oxygen, nitrogen, and carbon; and  
10           silicon,  
          wherein said carbon-containing component comprises a carbon-  
carbon composite material.

23.   (New) The coating of claim 22, wherein said coating comprises at  
least two layers, wherein each of said layers comprises a material selected from  
said group.

24.   (new) The coating of claim 23, wherein each of said layers  
comprises a compound selected from the group consisting of silicon carbide

(SiC<sub>y</sub>); silicon oxycarbide (SiO<sub>x</sub>C<sub>y</sub>); silicon carbonitride (SiC<sub>y</sub>N<sub>z</sub>); and silicon oxycarbonitride (SiO<sub>x</sub>C<sub>y</sub>N<sub>z</sub>), wherein  $x < 2$ ,  $y < 1$  and  $z < 4/3$ , and at least one of  
5 x, y, and z is greater than zero.

25. (New) The coating of claim 24, wherein the carbon (C) in said compound is chemically bound.

26. (New) The coating of claim 22, wherein said carbon-containing component comprises a plate-fin heat exchanger.

27. (New) The coating of claim 22, wherein said coating is applied directly to a surface of said carbon-containing component.